

### Digital Contact Thermometer

IEC 751 - ITS 90 - ASTM E644 - ASTM E1137 - ASTM E2877



- ⊕ Display with two or three decimal places
- ⊕ Fast response ( $T_{63} < 3$  seconds)
- ⊕ Clear OLED Display
- ⊕ Up to  $\pm 0.01^\circ\text{C}$  precision
- ⊕  $^\circ\text{C} / ^\circ\text{F}$  selectable
- ⊕ ITS 90, ASTM E2877 Class A

#### General

This thermometer is referred to as a Resistive Contact Thermometer (RCT) or Resistive Thermometer Device (RTD). It uses a six points ITS 90 calibration to guarantee the accuracy of  $\pm 0.01^\circ\text{C}$  over its full range. The maximum range available is minus  $40^\circ\text{C}$  up to plus  $140^\circ\text{C}$ . The fast response to temperature changes ensures a  $T_{63}$  response time of less than three seconds. That means that at least 63 percent of the temperature change is displayed within three seconds. This is a very important parameter. When using a thick metal PT100, it appears as though the temperature reading is stable, however this false stability is caused by the large thermal mass of the probe. This thermal mass prevents rapid temperature changes so it appears that temperature reading is stable. This phenomenon gives a technician a false sense of temperature stability. It's not a stable temperature but the PT100s' thermal mass masters the temperature fluctuations which results a feeling of having a stable temperature. In reality the dampened temperature fluctuations may result in significant error during viscosity measurement. Another disadvantage of a long response time is that it takes a very long time for the thermometer to reach the true temperature.

Item	Unit	
Ordering code		For temperature range, please see tables on the next pages
Range		$-40 \dots + 140^\circ\text{C} / -40 \dots 302^\circ\text{F}$ , please see tables on the next pages
Reading		$^\circ\text{C}$ or $^\circ\text{F}$ menu selectable
Interface		USB
Resolution	$[\text{ }^\circ\text{C}/^\circ\text{F}]$	0.01 or 0.001, please see tables on next pages
Accuracy	$[\text{ }^\circ\text{C}]$	Up to $\pm 0.01$ , please see tables on next pages
Linearity	$[\text{ }^\circ\text{C}]$	$\pm 0.01$
Drift annual	$[\text{ }^\circ\text{C}]$	$\pm 0.001$
Response $T_{63}$	$[\text{Sec}]$	$< 3$
Power		USB or 5V - mains adapter RJ11
Dimensions	$[\text{mm}]$	62 x 39 x 22 (excluding probe)
Probe	$[\text{mm}]$	65 x 6mm - 115 x 3
Probe material		304 Stainless steel
Weight	$[\text{gr}]$	42
CE		Conforms to CE regulation

#### Construction

The thermometer consists of a stainless steel PT100 probe, a small electronic circuit board which is placed in a plastic (ABS) housing. The PT100 probe is thermally insulated from this housing using a PTFE ring. The electronics are powered via USB cable. The probe is designed to accommodate a wide range of voltages and frequencies (85~260V/50~60Hz).

#### Calibration

The probe is factory calibrated for the specific range which is specified in the table on the next page. Outside this range the thermometer will display "Low" or "High". Each thermometer is individually calibrated and will meet the specified accuracy. Each thermometer also is tested at a minimum of five other temperatures. Additional test points at specific temperatures can be requested (P/N **10T6098**). Each thermometer comes with a works calibration certificate.

#### USB

The thermometer can be connected to a USB device to power it. Special software enables upload of calibration parameters over the USB. Graphical display and logging software will be available in the near future.

#### Standards and regulation

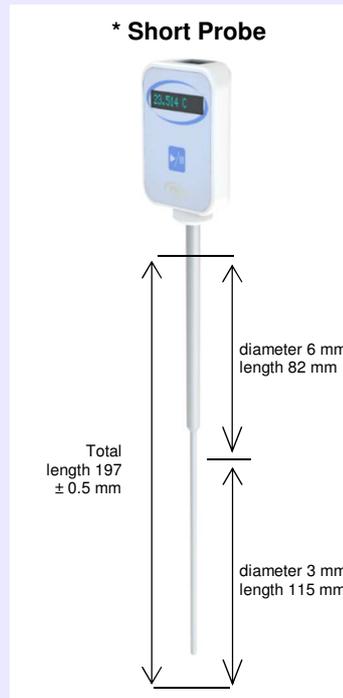
The thermometer meets the following standards and regulations: CE, IEC 751, ITS 90, ASTM E644, ASTM E1137, and ASTM E2877. For calibration and use please see ASTM E563 and E644.

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Range	-40 .. + 20°C	0 .. +80°C	20 .. + 120°C	-40 .. + 140°C
Resolution 0.01 (two decimals) accuracy $\pm 0.02^\circ\text{C}$ short* PT-100 probe	19T4021	19T4022	19T4023	19T4024
Resolution 0.001 (three decimals) accuracy $\pm 0.01^\circ\text{C}$ short* PT-100 probe	19T4031	19T4032	19T4033	19T4034
Additional verification temperature point to be mentioned on works certificate	10T6098	10T6098	10T6098	10T6098

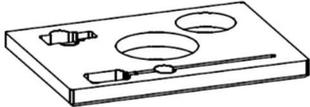
E20 Thermometer



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E20 Thermometer

Standard included with E20 Thermometer with short PT-100 probe		
Part Number	Picture	Description
10T6097		Works certificate with test points. This certificate is standard included with the delivery.
21T0205		Suitcase with foam insert for E20 thermometer with short probe.
24T0013		12V Adapter
28T2040		Cable RJ11 to USB-A 1.8 meter

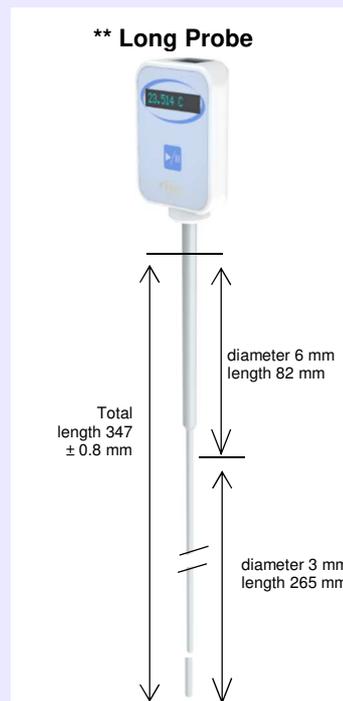
Optional		
Part Number	Picture	Description
10T6098		Optional additional verification temperature point mentioned on <b>P/N 10T6097</b> , price per point. [-40 .. +145°]

Accessory		
Part Number	Picture	Description
14T0303		Adapter to insert an E20 thermometer in a TV2000, TV4000, TV4000DC, TV4000LT, TV7000, TV7000DC, TV7000LT, TV12, TV12LT and TV2500.

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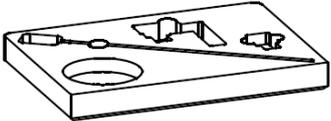
Special request; Long PT-100 Probe				
Range	-40 .. + 20°C	0 .. +80°C	20 .. + 120°C	-40 .. + 140°C
Resolution 0.01 (two decimals) accuracy $\pm 0.02^\circ\text{C}$ long** PT-100 probe	19T4041	19T4042	19T4043	19T4044
Resolution 0.001 (three decimals) accuracy $\pm 0.01^\circ\text{C}$ long** PT-100 probe	19T4051	19T4052	19T4053	19T4054
Additional verification temperature point to be mentioned on works certificate	10T6098	10T6098	10T6098	10T6098



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Standard included with E20 Thermometer with long PT-100 probe		
Part Number	Picture	Description
10T6097		Works certificate with test points. This certificate is standard included with the delivery.
21T0201		Suitcase with foam insert for E20 thermometer with long probe.
24T0013		12V Adapter
28T2040		Cable RJ11 to USB-A 1.8 meter

Optional		
Part Number	Picture	Description
10T6098		Optional additional verification temperature point mentioned on <b>P/N 10T6097</b> , price per point. [-40 .. +145°]

Accessory		
Part Number	Picture	Description
14T0303		Adapter to insert an E20 thermometer in a TV2000, TV4000, TV4000DC, TV4000LT, TV7000, TV7000DC, TV7000LT, TV12, TV12LT and TV2500.

E20 Thermometer